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ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.*

(54) Title: GEL-BASED COSMETIC COMPOSITION

(57) Abstract: The invention relates to cosmetic compositions comprising an elastic, non-rigid, porous support in which a low-viscosity, gellant-containing, single phase otherwise unstable cosmetic formulation has been incorporated, and a method of making same.

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GEL-BASED COSMETIC COMPOSITION

Field of the Invention

5 The invention relates to the field of cosmetics. More specifically, the invention relates to gel-based color cosmetics.

Background of the Invention

10 A majority of color cosmetics are formulated with one or more inorganic pigment particles which confer the desired color to the composition. These particles are normally iron oxides, or titanium dioxide, having particle sizes ranging from about .5-200nm. Obviously, these pigments are an essential part of color cosmetics, and yet the very nature of these particles makes it
15 difficult to formulate a product around them. These particles are soluble in neither oil nor water, and therefore must simply be suspended in the oil or water vehicle making up the base of the product. To achieve this, particularly in a single phase product, it is usually necessary to incorporate one or more thickeners or
20 suspending agents into the formula. Without these suspending agents, which are usually waxes, it is virtually impossible to make a stable single phase formulation, as all the pigment particles soon settle out. Unfortunately, the suspending agents, in performing their required function, make the formula thicker
25 and heavier than might otherwise be desirable. The texture of such formulas may be unacceptable to some consumers, particularly in warmer weather, when the lightest possible makeup is desired. Also, the suspending agents can interfere with the purity of color achieved in the formula. Thus, to date it has proven difficult,
30 if not impossible, to provide a stable color cosmetic that is substantially nothing more than a pure color suspension, without the addition of suspending agents. The present invention now provides a unique solution to this formulation problem.

Summary of the Invention

The invention relates to a cosmetic or pharmaceutical composition comprising an elastic, non-rigid, porous support in which a low-viscosity, gellant-containing, otherwise unstable cosmetic or pharmaceutical formulation is integrated. The support acts as a stabilizer for the formulation, thereby permitting the preparation of low-viscosity formulas, reducing or completely eliminating the need for thickeners or suspending agents to keep any included inorganic pigments from settling out. The invention also relates to a method of making a stable cosmetic composition comprising preparing a low-viscosity, gellant-containing, otherwise unstable cosmetic formulation, and incorporating the formulation into a porous, non-rigid support. Preferably, the method includes the steps of preparing the formulation under conditions which do not permit gelling, adding the ungelled formulation to a non-rigid porous support, and allowing the formulation to gel within the support. The formulation in the support is nearly water-thin and very lightweight, and is accessed by pressing on the surface of the support, with either the fingers or another applicator.

Detailed Description of the Invention

The use of sponges or other porous devices to apply cosmetics to the skin is of course well-known (e.g., EP 823228; US 5401113; CN 1073111; FR 2628394; US 4927283; DE 3615358; US 4706693) Unlike many other porous-type applicators, the present combination does not have a separate reservoir of the formulation to be applied, from which the formulation is ultimately drawn to supply the porous applicator; instead, the entire formulation is distributed integrally throughout the support, the combination of support and formulation itself acting as the sole reservoir and source of product to be applied. The present invention also differs from such cosmetic uses of sponges in that the sponge in

the present case is used essentially as a stabilizer for a very low viscosity cosmetic composition, which composition would be otherwise be unstable. By "otherwise unstable", as used in the present specification and claims, is meant a formulation that, because of its low viscosity, is unable to stably maintain a suspension of inorganic pigment; in other words, contained pigment particles would quickly settle out of the formulation upon resting.

Although the formulation is gel-based, it contains relatively low levels of gellant, so that the gelled formulation, in the absence of the support, is inadequate to support the heavy pigments. Too much gellant in the formulation will result in a hardening of the porous support, and no payoff of the formulation when the support is compressed. In other words, the gellant should be used at a level which would be inadequate to stably support the presence of pigment particles in the formulation. Although levels are low, the presence of the gellant is essential, however, to permit the formulation to set up within the sponge; otherwise, the formulation will simply drip out of the support. The amount of gellant to be used, in functional terms, is that amount that will produce a fluid consistency below that of a paste; preferably, the formulation is nearly water-thin. The amount used will of course vary in absolute terms depending upon the identity of the gellant used, but is readily determinable for any gellant of interest.

The identity of the gellant will depend on the identity of the phase to be gelled. If the gelled phase is an oil phase, the gellant can be selected from any oil-soluble gellants, such as dextrin fatty acid esters, such as dextrin palmitate; cholesterol and derivatives, such as lanosterol, silicone gellants, such as organopolysiloxane elastomers; oil soluble cellulose derivatives, such as ethyl cellulose, and polymers or mixed copolymers, such as ethylene/methacrylic acid copolymer, ethylene/acrylic acid

copolymer, or polyethylene. The oil base may be any cosmetically acceptable oil, either volatile or non-volatile, or a mixture of both. For example, suitable volatile oils include, but are not limited to, both cyclic and linear silicones, such as cyclomethicone; or straight or branched chain hydrocarbons having from 8-20 carbon atoms, such as decane, dodecane, tridecane, tetradecane, and C8-20 isoparaffins.

Non-volatile oils include, but are not limited to, vegetable oils, such as coconut oil, jojoba oil, corn oil, sunflower oil, palm oil, soybean oil; carboxylic acid esters such as isostearyl neopentanoate, cetyl octanoate, cetyl ricinoleate, octyl palmitate, dioctyl malate, coco-dicaprylate/caprate, decyl isostearate, myristyl myristate; animal oils such as lanolin and lanolin derivatives, tallow, mink oil or cholesterol; glyceryl esters, such as glyceryl stearate, glyceryl dioleate, glyceryl distearate, glyceryl linoleate, glyceryl myristate; non-volatile silicones, such as dimethicone, dimethiconol, dimethicone copolyol, phenyl trimethicone, methicone, simethicone; and non-volatile hydrocarbons, such as isoparaffins, squalane, or petrolatum.

The gelled phase may also be aqueous. In the case in which the base is aqueous, the gellant will be a water-soluble gellant, such as carbomer, hydroxypropyl methylcellulose, hydroxyethylcellulose, hydroxy propyl guar, hydroxypropyl cellulose, potato starch modified, or acrylates/C10-C30 alkyl acrylates crosspolymer. Although the advantage of the invention is particularly great for use with a single phase composition, it is also possible to employ the porous support concept with a low viscosity emulsion, either oil-in-water or water-in-oil, utilizing the appropriated gellant to gel the emulsion's external phase.

The amount of base in the formulation, whether single phase oil or water, or a water-and-oil emulsion, will be in the range of from about 30 to about 99.6% by weight of the formulation. In one

preferred embodiment, the base is an anhydrous oil base, and more preferably, a silicone base, and the gellant is a cholesterol derivative, such as lanosterol. When using a cholesterol derivative, the amount of gellant employed ranges from about 0.1 to about 10%, preferably about 0.1 to about 2%, by weight of the formulation.

The formulation may also contain additional components. Particularly in the case of a color cosmetic product, the formulation will contain one or more pigments, which may be organic, inorganic, or a combination thereof. Examples of useful pigments include, but are not limited, inorganic pigments such as iron oxides (yellow, red, brown or black), ferric ammonium ferrocyanide (blue), manganese violet, ultramarine blue, chrome oxide (green), talc, lecithin modified talc, zeolite, kaolin, lecithin modified kaolin, titanium dioxide (white) and mixtures thereof. Other useful pigments are pearlants such as mica, bismuth oxychloride and treated micas, such as titanated micas and lecithin modified micas.

Useful organic pigments include natural colorants and synthetic monomeric and polymeric colorants. Exemplary are phthalocyanine blue and green pigment, diarylide yellow and orange pigments, and azo-type red and yellow pigments such as toluidine red, litho red, naphthol red and brown pigments. Also useful are lakes, which are pigments formed by the precipitation and absorption of organic dyes on an insoluble base, such as alumina, barium, or calcium hydrates. Particularly preferred lakes are primary FD&C or D&C lakes and blends thereof. Also included are polymer pigments, e.g., nylon powder, polyethylene, and polyesters. The polyesters can include linear, thermoplastic, crystalline or amorphous materials produced using one or more diols and one or more dicarboxylic acids copolymerized with colorants. Other pigments to be used in the invention will be apparent to one of ordinary skill in the art.

The formulation can also be a non-makeup product, i.e., a skincare product without added pigment. In this regard, the formulation may also contain one or more active ingredients, such as sunscreens, self-tanning agents, chemical exfoliators, such as AHAs or BHAs, antioxidants, anti-irritants, anti-inflammatories, vitamins, skin-whiteners, and the like. Additional components, such as skin conditioners, emollients, fillers, powders, pigment wetting agents, and other such materials as are consistent with the intended use of the final product. The formulation is characterized further, however, in containing less than about 5%, preferably less than about 1.0%, by weight of waxes or suspending agents. This is in contrast to normal low-viscosity compositions, which would usually require about 10% of suspending agents in order to keep suspended particles from settling out.

The formulation after preparation is added, in a pourable state, to the porous, non-rigid support. As the amount of gellant used is low, even a fully gelled formulation may be pourable into the support. However, it is preferred that the formulation be maintained in a non-gelled state until it is in the sponge, so that the gel actually sets up within the support. Frequently, as will be the case with an anhydrous oil base, the formulation will be a hot pour, in which the formulation is added while at elevated temperature to the support and allowed to cool, and gel, after it has penetrated the support.

The support can be virtually any porous material that is cosmetically acceptable, and compatible with the cosmetic formulation to be added to it. The support will ordinarily be a foam or a sponge, such as a natural sponge, a foamed rubber such as natural rubber, synthetic polyisoprene, nitrile, neoprene, ethylene propylene diene type M, or polyurethane, or a foamed polyethylene. Pore size should be in the range of from about 300-100 pores per inch. Care should be taken to ensure that the pore size is no smaller than the size of any particles, such as

pigments or powders, found in the formulation, so as to avoid clogging of the pores by the particles.

The preparation of the final product is straightforward: after preparation of the formulation, the liquid formulation is poured into the support, or alternately, the support is dipped or immersed in the formulation. In the case of a formulation that has not been gelled prior to addition to the support, the composition comprising support and formulation is left at room temperature for a time sufficient for the gellant to set up the formulation within the support. This time will vary depending upon the set point of any given gellant, but will ordinarily be no longer than about 15 minutes within the support. The composition is then ready to use. Although the level of gellant is selected so as to produce an inherently unstable formulation, the formulation is sufficiently gelled within the support to prevent its running out of the support in an uncompressed state; however, because the level is so low, when pressure is applied to the support, whether by pressing of the fingers or the skin surface to which it will be applied, or by pressing of another applicator onto the support, the gel readily breaks, releasing a lightweight, non-pasty, non-waxy, substantially water-thin product which is easily applied to the skin. This delivery system also exhibits a unique, silky, luxurious feel to the touch.

The formulation of the invention in a preferred embodiment will be a color cosmetic, such as a blush, foundation, eyeshadow, mascara (hair or lash), lip gloss, and the like. However, it can also be a skin care product, such as sunscreen, self-tanner, moisturizer, anti-acne product, anti-wrinkle composition, and the like, or it can be a pharmaceutical product intended for topical application to the skin, for example, an antibiotic, a wound-healing agent, an anti-inflammatory, and the like.

For practical use, the invention will normally be placed in a cosmetic-type package, for example, a compact or jar, for ease

of handling, and to prevent drying out. However, it may also be used as an applicator itself, e.g. alone or on a stick-type device. The invention therefore also provides a unit package comprising the cosmetic composition described herein. The
5 invention will be further elucidated by reference to the following non-limiting example.

EXAMPLES

Example 1

5 A formulation of the invention is prepared as follows:

	<u>Material</u>	<u>Weight %</u>
	red iron oxide	1.00
10	yellow iron oxide	2.00
	black iron oxide	0.20
	titanium dioxide	17.20
	polyglyceryl-3 diisostearate	0.50
	phenyltrimethicone	64.20
15	polymethyl methacrylate	7.00
	lauroyl lysine	3.50
	dimethicone/cyclomethicone	4.00
	lanosterol	0.40

20 The composition is prepared as follows:

1. Pigments are mixed under a propeller in polyglyceryl-3 diisostearate and 20% phenyl trimethicone.
2. The pigment mixture is then run through a roller mill three
25 times until the pigments are thoroughly wet out.
3. All the materials but the lanosterol are mixed together until homogeneous.
4. The mixture is heated to 100-105°C.
5. Lanosterol is slowly added under mixing.
- 30 6. Mixing is continued for about 10 minutes or until all lanosterol goes into solution.
7. If the formulation is to be used hot, a sponge (e.g., Qosmedix non-latex hydrophilic open cell sponge, 200 pores per inch) is

immersed into the hot mixture until it is fully saturated, ordinarily about 5 minutes. Excess material is wiped off and the sponge is inserted into a compact.

- 5 8. If the formulation is to be applied at room temperature, the sponge is immersed into the mixture as described in paragraph 7. above, while the mixture is being agitated in order to preserve homogeneity while absorption is occurring.

What we claim is:

- 5 1. A cosmetic or pharmaceutical composition comprising a non-rigid, porous support in which a low-viscosity, gellant-containing, otherwise unstable cosmetic or pharmaceutical formulation is incorporated.
- 10 2. The composition of claim 1 which comprises an oil phase.
3. The composition of claim 1 in which the formulation is a water-and-oil emulsion.
- 15 4. The composition of claim 2 which is anhydrous.
5. The composition of claim 2 in which the base comprises a silicone oil.
- 20 6. The composition of claim 2 in which the gellant is selected from the group consisting of cholesterol and derivatives thereof, dextrin fatty acid esters, silicone gellants, oil-soluble cellulose derivatives, and oil-soluble polymers.
- 25 7. The composition of claim 6 in which the gellant is a cholesterol derivative.
8. The composition of claim 7 in which the gellant is lanosterol.
- 30 9. The composition of claim 1 in which the porous support has a pore size of from about 100 to about 300 pores per inch.
10. The composition of claim 1 in which the porous support is made

of a material selected from the group consisting of a natural sponge, a foamed rubber or a foamed polyethylene.

5 11. The composition of claim 1 which also contains at least one pigment.

12. The composition of claim 11 which comprises an inorganic pigment.

10 13. The composition of claim 1 which contains substantially no waxes or suspending agents.

15 14. A method for making a cosmetic or pharmaceutical composition comprising (a) preparing a low viscosity, gellant-containing, otherwise unstable formulation; and (b) incorporating the formulation into a porous, elastic, non-rigid support.

20 15. The method of claim 14 in which the formulation is prepared under conditions which do not permit gelling of the formulation.

16. The method of claim 15 in which the formulation is permitted to gel within the support.

25 17. A composition prepared according to the method of claim 14.

18. A composition prepared according to the method of claim 15.

30 19. A composition prepared according to the method of claim 16.

20. The composition of claim 17 in which the formulation comprises an oil.

21. The composition of claim 20 in which the gellant is selected from the group consisting of cholesterol derivatives, dextrin fatty acid esters, silicone gellants, and oil-soluble polymers.

5 22. The composition of claim 21 in which the oil comprises a silicone oil.

23. The composition of claim 21 in which the gellant is a cholesterol derivative.

10

24. The composition of claim 21 in which the gellant is lanosterol.

15

25. A cosmetic composition comprising an elastic, non-rigid porous support into which a low-viscosity, cholesterol or cholesterol derivative gellant-containing, otherwise unstable formulation has been integrated, the formulation also comprising at least one inorganic pigment, and an anhydrous base.

20

26. The composition of claim 23 in which the gellant is lanosterol.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/17098

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61K7/48 A61K7/00 A61K9/70

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

WPI Data, PAJ, EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5 137 040 A (ILYA IOSILEVICH ET AL.) 11 August 1992 (1992-08-11) claims 1,9,12	1-20
Y	WO 95 09598 A (THE PROCTER & GAMBLE COMPANY) 13 April 1995 (1995-04-13) claim 1	1-20
Y	PATENT ABSTRACTS OF JAPAN vol. 15, no. 123 (C-816), 26 March 1991 (1991-03-26) & JP 03 006283 A (YOSHIKAWA SEIYU KK), 11 January 1991 (1991-01-11) abstract	1-20
X	FR 2 455 902 A (LANGLOIS ET AL.) 5 December 1980 (1980-12-05) claims 1,7,11	1,10,14, 17
-/-		

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

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Date of the actual completion of the international search

25 September 2000

Date of mailing of the international search report

02/10/2000

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INTERNATIONAL SEARCH REPORT

International Application No

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 98 15262 A (THE PROCTER & GAMBLE COMPANY) 16 April 1998 (1998-04-16) claims 1,4	1,2,5, 14,17,20
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 00/17098

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
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			JP 3074086 B	25-11-1991
			JP 62179404 A	06-08-1987

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REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

Box No. I TITLE OF INVENTION
GEL-BASED COSMETIC COMPOSITION

Box No. II APPLICANT

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

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☐ This person is also inventor.

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Facsimile No.

Teleprinter No.

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This person is applicant for the purposes of: ☐ all designated States ☒ all designated States except the United States of America ☐ the United States of America only ☐ the States indicated in the Supplemental Box

Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

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This person is:

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☒ applicant and inventor

☐ inventor only (If this check-box is marked, do not fill in below.)

State (that is, country) of nationality:
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State (that is, country) of residence:
US

This person is applicant for the purposes of: ☐ all designated States ☐ all designated States except the United States of America ☒ the United States of America only ☐ the States indicated in the Supplemental Box

☒ Further applicants and/or (further) inventors are indicated on a continuation sheet.

Box No. IV AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE

The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:

☒ agent ☐ common representative

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

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☐ Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

Continuation of Box No. III FURTHER APPLICANTS AND/OR (FURTHER) INVENTOR(S)

If none of the following sub-boxes is used, this sheet is not to be included in the request.

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This person is:

- ☐ applicant only
☒ applicant and inventor
☐ inventor only (If this check-box is marked, do not fill in below.)

State (that is, country) of nationality:
US

State (that is, country) of residence:
US

This person is applicant for the purposes of: ☐ all designated States ☐ all designated States except the United States of America ☒ the United States of America only ☐ the States indicated in the Supplemental Box

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

This person is:

- ☐ applicant only
☐ applicant and inventor
☐ inventor only (If this check-box is marked, do not fill in below.)

State (that is, country) of nationality:

State (that is, country) of residence:

This person is applicant for the purposes of: ☐ all designated States ☐ all designated States except the United States of America ☐ the United States of America only ☐ the States indicated in the Supplemental Box

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

This person is:

- ☐ applicant only
☐ applicant and inventor
☐ inventor only (If this check-box is marked, do not fill in below.)

State (that is, country) of nationality:

State (that is, country) of residence:

This person is applicant for the purposes of: ☐ all designated States ☐ all designated States except the United States of America ☐ the United States of America only ☐ the States indicated in the Supplemental Box

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This person is:

- ☐ applicant only
☐ applicant and inventor
☐ inventor only (If this check-box is marked, do not fill in below.)

State (that is, country) of nationality:

State (that is, country) of residence:

This person is applicant for the purposes of: ☐ all designated States ☐ all designated States except the United States of America ☐ the United States of America only ☐ the States indicated in the Supplemental Box

☐ Further applicants and/or (further) inventors are indicated on another continuation sheet.

Box No.V DESIGNATION OF STATES

The following designations are hereby made under Rule 4.9(a) (mark the applicable check-boxes; at least one must be marked):

Regional Patent

- ☒ **AP ARIPO Patent:** GH Ghana, GM Gambia, KE Kenya, LS Lesotho, MW Malawi, SD Sudan, SL Sierra Leone, SZ Swaziland, TZ United Republic of Tanzania, UG Uganda, ZW Zimbabwe, and any other State which is a Contracting State of the Harare Protocol and of the PCT
- ☒ **EA Eurasian Patent:** AM Armenia, AZ Azerbaijan, BY Belarus, KG Kyrgyzstan, KZ Kazakhstan, MD Republic of Moldova, RU Russian Federation, TJ Tajikistan, TM Turkmenistan, and any other State which is a Contracting State of the Eurasian
- ☒ **EP European Patent:** AT Austria, BE Belgium, CH and LI Switzerland and Liechtenstein, CY Cyprus, DE Germany, DK Denmark, ES Spain, FI Finland, FR France, GB United Kingdom, GR Greece, IE Ireland, IT Italy, LU Luxembourg, MC Monaco, NL Netherlands, PT Portugal, SE Sweden, and any other State which is a Contracting State of the European Patent Convention and of the PCT
- ☒ **OA OAPI Patent:** BF Burkina Faso, BJ Benin, CF Central African Republic, CG Congo, CI Côte d'Ivoire, CM Cameroon, GA Gabon, GN Guinea, GW Guinea-Bissau, ML Mali, MR Mauritania, NE Niger, SN Senegal, TD Chad, TG Togo, and any other State which is a member State of OAPI and a Contracting State of the PCT (if other kind of protection or treatment desired, specify on dotted line)

National Patent (if other kind of protection or treatment desired, specify on dotted line):

- | | |
|--|--|
| <input checked="" type="checkbox"/> AE United Arab Emirates | <input checked="" type="checkbox"/> LR Liberia |
| <input checked="" type="checkbox"/> AL Albania | <input checked="" type="checkbox"/> LS Lesotho |
| <input checked="" type="checkbox"/> AM Armenia | <input checked="" type="checkbox"/> LT Lithuania |
| <input checked="" type="checkbox"/> AT Austria | <input checked="" type="checkbox"/> LU Luxembourg |
| <input checked="" type="checkbox"/> AU Australia | <input checked="" type="checkbox"/> LV Latvia |
| <input checked="" type="checkbox"/> AZ Azerbaijan | <input checked="" type="checkbox"/> MA Morocco |
| <input checked="" type="checkbox"/> BA Bosnia and Herzegovina | <input checked="" type="checkbox"/> MD Republic of Moldova |
| <input checked="" type="checkbox"/> BB Barbados | <input checked="" type="checkbox"/> MG Madagascar |
| <input checked="" type="checkbox"/> BG Bulgaria | <input checked="" type="checkbox"/> MK The former Yugoslav Republic of Macedonia |
| <input checked="" type="checkbox"/> BR Brazil | |
| <input checked="" type="checkbox"/> BY Belarus | <input checked="" type="checkbox"/> MN Mongolia |
| <input checked="" type="checkbox"/> CA Canada | <input checked="" type="checkbox"/> MW Malawi |
| <input checked="" type="checkbox"/> CH and LI Switzerland and Liechtenstein | <input checked="" type="checkbox"/> MX Mexico |
| <input checked="" type="checkbox"/> CN China | <input checked="" type="checkbox"/> NO Norway |
| <input checked="" type="checkbox"/> CR Costa Rica | <input checked="" type="checkbox"/> NZ New Zealand |
| <input checked="" type="checkbox"/> CU Cuba | <input checked="" type="checkbox"/> PL Poland |
| <input checked="" type="checkbox"/> CZ Czech Republic | <input checked="" type="checkbox"/> PT Portugal |
| <input checked="" type="checkbox"/> DE Germany | <input checked="" type="checkbox"/> RO Romania |
| <input checked="" type="checkbox"/> DK Denmark | <input checked="" type="checkbox"/> RU Russian Federation |
| <input checked="" type="checkbox"/> DM Dominica | <input checked="" type="checkbox"/> SD Sudan |
| <input checked="" type="checkbox"/> EE Estonia | <input checked="" type="checkbox"/> SE Sweden |
| <input checked="" type="checkbox"/> ES Spain | <input checked="" type="checkbox"/> SG Singapore |
| <input checked="" type="checkbox"/> FI Finland | <input checked="" type="checkbox"/> SI Slovenia |
| <input checked="" type="checkbox"/> GB United Kingdom | <input checked="" type="checkbox"/> SK Slovakia |
| <input checked="" type="checkbox"/> GD Grenada | <input checked="" type="checkbox"/> SL Sierra Leone |
| <input checked="" type="checkbox"/> GE Georgia | <input checked="" type="checkbox"/> TJ Tajikistan |
| <input checked="" type="checkbox"/> GH Ghana | <input checked="" type="checkbox"/> TM Turkmenistan |
| <input checked="" type="checkbox"/> GM Gambia | <input checked="" type="checkbox"/> TR Turkey |
| <input checked="" type="checkbox"/> HR Croatia | <input checked="" type="checkbox"/> TT Trinidad and Tobago |
| <input checked="" type="checkbox"/> HU Hungary | <input checked="" type="checkbox"/> TZ United Republic of Tanzania |
| <input checked="" type="checkbox"/> ID Indonesia | <input checked="" type="checkbox"/> UA Ukraine |
| <input checked="" type="checkbox"/> IL Israel | <input checked="" type="checkbox"/> UG Uganda |
| <input checked="" type="checkbox"/> IN India | <input checked="" type="checkbox"/> US United States of America continuation-in-part |
| <input checked="" type="checkbox"/> IS Iceland | |
| <input checked="" type="checkbox"/> JP Japan | <input checked="" type="checkbox"/> UZ Uzbekistan |
| <input checked="" type="checkbox"/> KE Kenya | <input checked="" type="checkbox"/> VN Viet Nam |
| <input checked="" type="checkbox"/> KG Kyrgyzstan | <input checked="" type="checkbox"/> YU Yugoslavia |
| <input checked="" type="checkbox"/> KP Democratic People's Republic of Korea | <input checked="" type="checkbox"/> ZA South Africa |
| | <input checked="" type="checkbox"/> ZW Zimbabwe |
| <input checked="" type="checkbox"/> KR Republic of Korea | Check-boxes reserved for designating States which have become party to the PCT after issuance of this sheet: |
| <input checked="" type="checkbox"/> KZ Kazakhstan | <input checked="" type="checkbox"/> DZ Algeria |
| <input checked="" type="checkbox"/> LC Saint Lucia | <input checked="" type="checkbox"/> AG Antigua and Barbuda |
| <input checked="" type="checkbox"/> LK Sri Lanka | <input checked="" type="checkbox"/> MZ Mozambique |
| | <input checked="" type="checkbox"/> BZ Belize |

Precautionary Designation Statement: In addition to the designations made above, the applicant also makes under Rule 4.9(b) all other designations which would be permitted under the PCT except any designation(s) indicated in the Supplemental Box as being excluded from the scope of this statement. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. (Confirmation (including fees) must reach the receiving Office within the 15-month time

Supplemental Box *If the Supplemental Box is not used, this sheet need not be included in the request.*

1. If, in any of the Boxes, the space is insufficient to furnish all the information: in such case, write "Continuation of Box No. ..." [indicate the number of the Box] and furnish the information in the same manner as required according to the captions of the Box in which the space was insufficient, in particular:

- (i) if more than two persons are involved as applicants and/or inventors and no "continuation sheet" is available: in such case, write "Continuation of Box No. III" and indicate for each additional person the same type of information as required in Box No. III. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below;
- (ii) if, in Box No. II or in any of the sub-boxes of Box No. III, the indication "the States indicated in the Supplemental Box" is checked: in such case, write "Continuation of Box No. II" or "Continuation of Box No. III" or "Continuation of Boxes No. II and No. III" (as the case may be), indicate the name of the applicant(s) involved and, next to (each) such name, the State(s) (and/or, where applicable, ARIPO, Eurasian, European or OAPI patent) for the purposes of which the named person is applicant;
- (iii) if, in Box No. II or in any of the sub-boxes of Box No. III, the inventor or the inventor/applicant is not inventor for the purposes of all designated States or for the purposes of the United States of America: in such case, write "Continuation of Box No. II" or "Continuation of Box No. III" or "Continuation of Boxes No. II and No. III" (as the case may be), indicate the name of the inventor(s) and, next to (each) such name, the State(s) (and/or, where applicable, ARIPO, Eurasian, European or OAPI patent) for the purposes of which the named person is inventor;
- (iv) if, in addition to the agent(s) indicated in Box IV, there are further agents: in such case, write "Continuation of Box No. IV" and indicate for each further agent the same type of information as required in Box No. IV;
- (v) if, in Box No. V, the name of any State (or OAPI) is accompanied by the indication "patent of addition," or "certificate of addition," or if, in Box No. V, the name of the United States of America is accompanied by an indication "continuation" or "continuation-in-part": in such case, write "Continuation of Box No. V" and the name of each State involved (or OAPI), and after the name of each such State (or OAPI), the number of the parent title or parent application and the date of grant of the parent title or filing of the parent application;
- (vi) if, in Box No. VI, there are more than three earlier applications whose priority is claimed: in such case, write "Continuation of Box No. VI" and indicate for each additional earlier application the same type of information as required in Box No. VI;
- (vii) if, in Box No. VI, the earlier application is an ARIPO application: in such case, write "Continuation of Box No. VI", specify the number of the item corresponding to that earlier application and indicate at least one country party to the Paris Convention for the Protection of Industrial Property or one Member of the World Trade Organization for which that earlier application was filed.

2. If, with regard to the precautionary designation statement contained in Box No. V, the applicant wishes to exclude any State(s) from the scope of that statement: in such case, write "Designation(s) excluded from precautionary designation statement" and indicate the name or two-letter code of each State so excluded.

3. If the applicant claims, in respect of any designated Office, the benefits of provisions of the national law concerning non-prejudicial disclosures or exceptions to lack of novelty: in such case, write "Statement concerning non-prejudicial disclosures or exceptions to lack of novelty" and furnish that statement below.

Continuation of Box No. V:

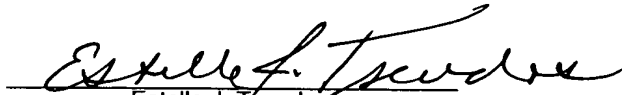
US: 09/344,090 (25.06.99)

Box No. VI PRIORITY CLAIM		<input type="checkbox"/> Further priority claims are indicated in the Supplemental Box.		
Filing date of earlier application (day/month/year)	Number of earlier application	Where earlier application is:		
		national application: country	regional application:* regional Office	international application: receiving Office
item (1) 25 June 1999 (25.06.99)	09/344,090	US		
item (2)				
item (3)				

☒ The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) (only if the earlier application was filed with the Office which for the purposes of the present international application is the receiving Office) identified above as item(s): (1)
 * Where the earlier application is an ARIPO application, it is mandatory to indicate in the Supplemental Box at least one country party to the Paris Convention for the Protection of Industrial Property for which that earlier application was filed (Rule 4.10(b)(ii)). See Supplemental Box.

Box No. VII INTERNATIONAL SEARCHING AUTHORITY	
Choice of International Searching Authority (ISA) (if two or more International Searching Authorities are competent to carry out the international search, indicate the Authority chosen; the two-letter code may be used): ISA/EP	Request to use results of earlier search; reference to that search (if an earlier search has been carried out by or requested from the International Searching Authority): Date (day/month/year) Number Country (or regional Office)

Box No. VIII CHECK LIST: LANGUAGE OF FILING	
This international application contains the following number of sheets: request : 5 description (excluding sequence listing part) : 10 claims : 3 abstract : 1 drawings : sequence listing part of description : Total number of sheets : 19	This international application is accompanied by the item(s) marked below: 1. <input checked="" type="checkbox"/> fee calculation sheet 2. <input type="checkbox"/> separate signed power of attorney 3. <input checked="" type="checkbox"/> copy of general power of attorney; reference number, if any: 4. <input type="checkbox"/> statement explaining lack of signature 5. <input type="checkbox"/> priority document(s) identified in Box No. VI as item(s): 6. <input type="checkbox"/> translation of international application into (language): 7. <input type="checkbox"/> separate indications concerning deposited microorganism or other biological material 8. <input type="checkbox"/> nucleotide and/or amino acid sequence listing in computer readable form 9. <input type="checkbox"/> other (specify):
Figure of the drawings which should accompany the abstract:	Language of filing of the international application: English

Box No. IX SIGNATURE OF APPLICANT OR AGENT
Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the request).  Estelle J. Tsevdos Agent for Applicant

For receiving Office use only (21.06.00)		2. Drawings: <input type="checkbox"/> received: <input type="checkbox"/> not received:
1. Date of actual receipt of the purported international application:	414 Rec'd PCT/PTO 21 JUN 2000	
3. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application:		
4. Date of timely receipt of the required corrections under PCT Article 11(2):		
5. International Searching Authority (if two or more are competent): ISA/EP	6. <input type="checkbox"/> Transmittal of search copy delayed until search fee is paid.	

Date of receipt of the record copy by the International Bureau:	For International Bureau use only
---	-----------------------------------

PCT

GENERAL POWER OF ATTORNEY

(for several international applications filed under the Patent Cooperation Treaty)

(PCT Rule 90.5)

The undersigned person(s):

(Family name followed by given name; for a full legal entity, full official designation. The address must include postal code and name of country.)

COLOR ACCESS, INC.
7 Corporate Center Drive
Melville, New York 11747
US

hereby appoint(s) the following person as:

☒ agent☐ common representative

Name and address

(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

TSEVDOS, Estelle J.
Kenyon & Kenyon
One Broadway
New York, New York 10004
US

to represent the undersigned before

☒ all the competent International Authorities☐ the International Searching Authority only☐ the International Preliminary Examining Authority only

in connection with any and all international applications filed by the undersigned with the following Office

U S

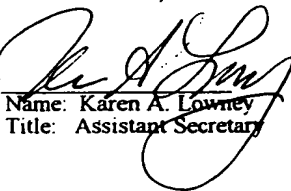
as receiving Office

and to make or receive payments on behalf of the undersigned.

Signature(s) (where there are several persons, each of them must sign; next to each signature, indicate the name of the person signing and the capacity in which the person signs, if such capacity is not obvious from reading this power):

COLOR ACCESS, INC.

By


Name: Karen A. Lowney
Title: Assistant Secretary

Date:

Oct 22, 1998

PCT

FEE CALCULATION SHEET

Annex to the Request

For receiving Office use only

PCT/US 00/17098

International application No.

21 JUN 2000

Date stamp of the receiving Office

(21.06.00)

Applicant's or agent's
file reference

2870/297

Applicant
COLOR ACCESS, INC.

CALCULATION OF PRESCRIBED FEES

1. TRANSMITTAL FEE

240.00 **T**

2. SEARCH FEE

925.00 **S**

International search to be carried out by **EP**

(If two or more International Searching Authorities are competent in relation to the international application, indicate the name of the Authority which is chosen to carry out the international search.)

3. INTERNATIONAL FEE

Basic Fee

The international application contains **19** sheets.

first 30 sheets

427.00 **b1**

0

x

remaining sheets

additional amount

0.00 **b2**

Add amounts entered at b1 and b2 and enter total at B

427.00 **B**

Designation Fees

The international application contains **85** designations.

8

x

92.00

=

736.00 **D**

number of designation fees payable (maximum 8) amount of designation fee

Add amounts entered at B and D and enter total at I

1,163.00 **I**

(Applicants from certain States are entitled to a reduction of 75% of the international fee. Where the applicant is (or all applicants are) so entitled, the

4. FEE FOR PRIORITY DOCUMENT (if applicable)

15.00 **P**

5. TOTAL FEES PAYABLE

Add amounts entered at T, S, I and P, and enter total in the TOTAL box

2,343.00

TOTAL

☐ The designation fees are not paid at this time.

MODE OF PAYMENT

☒ authorization to charge
deposit account (see below)

☐ bank draft

☐ coupons

☐ cheque

☐ cash

☐ other (specify):

☐ postal money order

☐ revenue stamps

DEPOSIT ACCOUNT AUTHORIZATION (this mode of payment may not be available at all receiving Offices)

The RO/ **US** ☒ is hereby authorized to charge the total fees indicated above to my deposit account.

☒ (this check-box may be marked only if the conditions for deposit accounts of the receiving Office so permit) is hereby authorized to charge any deficiency or credit any overpayment in the total fees indicated above to my deposit account.

☐ is hereby authorized to charge the fee for preparation and transmittal of the priority document to the International Bureau of WIPO to my deposit account.

05-1320

Deposit Account No.

Date **21/06/00** (day/month/year)

Signature **Estelle J. Tsevdos**

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

09622510

RECEIVED

DEC 11 2000

Applicant's or agent's file reference 2870/297		FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/US 00/ 17098	International filing date (day/month/year) 21/06/2000	(Earliest) Priority Date (day/month/year) 25/06/1999	
Applicant COLOR ACCESS, INC.			

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of Invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☐ None of the figures.